



U.S. DEPARTMENT OF AGRICULTURE



AGARDA

Agriculture Advanced Research
and Development Authority

*A Vision for Disruptive Science to
Confront Audacious Challenges*

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Introduction

Section 7132 of the *Agricultural Improvement Act of 2018* (Public Law 115-334), also known as the 2018 Farm Bill, 7 USC 3319k, established the Agriculture Advanced Research and Development Authority (AGARDA) pilot authority to develop technologies, research tools, and products through advanced research on long-term and high-risk challenges for food and agriculture to ensure that the United States maintains its position as leader in global agricultural Research and Development (R&D). This document outlines the imperative for a new approach to deliver disruptive breakthrough discoveries for agriculture and details a strategic framework for how the program will be executed when appropriated funding is received at the authorized level plus contingencies for various other funding levels.

The Case for Disruptive Science in Agriculture

Success of U.S. agriculture has been undergirded by investments in research enabling agricultural practices to evolve to meet demands of a dynamic food industry. Between 1948 and 2019, total agricultural output in the United States grew by 175 percent stemming from a highly productive investment in publicly funded innovations in crop and livestock breeding, nutrient use, pest management, and farm and field management. In fact, the USDA Economic Research Service found that public agricultural research and development investments from 1900 to 2011 generated, on average, \$20 in benefits to the U.S. economy for every \$1 of spending.

Yet while the challenges we face in agriculture have become more complex, requiring novel and bold approaches, when adjusted for the rising cost of conducting research, federal investments in agricultural research have declined by a third in the past two decades, since peaking in 2002.

Conceptually, the lower investment means that as a country we are placing *less* emphasis on the potentially life-extending work of making fresh, nutritious food available to all Americans. We are focusing *less* on ensuring a safe and secure food supply and *less* effort on building environmental and resource sustainability. In sum, we are putting *less* effort into helping the agricultural sector meet some incredible challenges. All at a time when our major trade competitors have increased their investments in agricultural research.

The global population is expected to exceed 9 billion by 2050. That's over 1 billion more mouths to feed. We are constantly challenged to develop new and better breeds and varieties of plants and animals to improve productivity, sustainability, and the safety of ag products. Emerging pests and diseases always loom waiting to cause billions of dollars of losses to production. Importantly, we are facing a crisis to support the vision of well-nourished Americans making health-promoting diet and lifestyle choices. We are doing all this work against the backdrop of climate change and the critical need to preserve the nation's natural resources.

These are not easy problems to solve. Where the challenges that faced agriculture mid-20th Century were single-focus challenges to increase production, today's challenges require high impact, transdisciplinary and convergent research. The Green Revolution, piloted by Norman Borlaug who credited USDA and public funding for agriculture for his work, was the last well-known disruptive science in agriculture and took place starting 70 years ago. The trend to less disruptive science is common across scientific fields, with more papers and patents being published with less dramatic advancement.¹

AGARDA Authorization and Funding

To facilitate a revival of disruptive agricultural science in response to the audacious challenges facing the food system today, Congress, through the 2018 Farm Bill, authorized the Agriculture Advanced Research and Development Authority (AGARDA) pilot.² The full text of the authorizing language is available in Appendix 1.

Congress' intent for the pilot is to support the U.S.' ability to maintain its position as a leader in global agricultural research and development. AGARDA is authorized at \$50M annually for Fiscal Year (FY) 2019-2023. The discretionary appropriations for AGARDA from FY 2019-2023 totaled \$2M, with USDA receiving \$1M in both the FY 2022 (Public Law 117-103) and FY 2023 (Public Law 117-328) Consolidated Appropriations Act.

AGARDA is based on the Advanced Research Projects Agency (ARPA) model which has been used effectively across government to catalyze the development of technologies that maintain and advance the capabilities of U.S. military, energy, and health industries. USDA benchmarked the two most visible ARPA models, established for 70 years at the Department of Defense (DOD), for 15 years at the Department of Energy (DOE), and one organization in its nascent stages at the Department of Health and Human Services. By considering all three of these models, USDA benefits from long-term success of the Department of Defense's Defense Advanced Research Projects Agency (DARPA), intermediate-term proven adjustments from the

The Green Revolution, by the numbers

- ✦ In 1950 the world produced 692 million tons of grain for 2.2 billion people; by 1992 production was 1.9 billion tons for 5.6 billion people - 2.8 times the grain for 2.2 times the population.
- ✦ Global grain yields rose from 0.45 tons per acre to 1.1 tons.
- ✦ From 1965 to 1990 the globe's daily per capita intake grew from 2,063 calories to 2,495, with an increased proportion as protein.
- ✦ The world's 1950 grain output of 692 million tons came from 1.7 billion acres of cropland, the 1992 output of 1.9 billion tons from 1.73 billion acres – a 170 percent increase from one percent more land.

Facts cited from Easterbrook, Gregg. *Forgotten Benefactor of Humanity*. *The Atlantic* January 1997. <https://www.theatlantic.com/magazine/archive/1997/01/forgotten-benefactor-of-humanity/306101/>.

¹ Park, M., Leahey, E. & Funk, R.J. Papers and patents are becoming less disruptive over time. *Nature* **613**, 138–144 (2023). <https://doi.org/10.1038/s41586-022-05543>.

² Full Text in Appendix *.

Department of Energy's ARPA-E, and early thinking on the new model adjustments from Department of Health and Human Services' ARPA-H.

Benchmarks and Best Practices

The Department of Defense's DARPA

The United States established DARPA in response to an effort to be the global leader in technological advances. The program which brings together public and private innovators to transform revolutionary concepts into game-changing discoveries like the Global Positioning System (GPS), unmanned aerial vehicles, and stealth technology.

DARPA's program portfolios are organized into six technical areas and managed by six corresponding offices. DARPA also uses ad hoc program portfolios as needed to make rapid progress in timely challenge areas. These temporary efforts coordinate work across the other portfolios and focus on accelerated results. DARPA's organizational structure is rounded out by a number of support offices.

With a small number of employees (about 200) and a simple structure, DARPA prides itself on being a flat organization unencumbered by barriers. A Director and Deputy Director head DARPA, and each of the six technical offices has an Office Director, an Assistant or Deputy Director, and a number of Program Managers, each with an area of expertise and program portfolio.

As shown in Table 1, Congress appropriated \$4 billion dollars for DARPA in FY 2023 (Public Law 117-328). Per DARPA's Framework, this is 25% of DOD's total science and technology funding.³ Our research shows this to be 12% of Research, Development, Test and Evaluation funding, Defense-wide.

The Department of Energy's ARPA-E

Congress established ARPA-E in 2007 in the America COMPETES Act (Public Law 110-69). The mission of ARPA-E is to catalyze and accelerate the creation of transformational energy technologies by making investments in the early stages of development. Although ARPA-E works explicitly with existing projects and programs within DOE, their unique niche in DOE is emerging research. Although they build on their existing and past work, they expect their portfolio to take dramatic and unexpected turns.

ARPA-E has 15 Program Directors working under the Director and 3 Deputy Directors. Instead of larger program areas like DARPA, ARPA-E has 75 programs that contain collections of coordinated projects focused on delivery solutions for one challenge such as "Agile Delivery of Electrical Power Technology." Exploratory Topics and Open Programs fund projects that don't

³ DARPA Creating Technology Breakthroughs and New Capabilities for National Security. Dated April 2019. Page 35.

fit easily into the existing program portfolio. ARPA-E has a heavy emphasis on moving developed technologies to market, like DARPA.

As shown in Table 1, Congress appropriated ARPA-E \$470 million dollars in FY 2023 (Public Law 117-328).

Table 1: Congressionally Appropriated ARPA and ARDA Dollars			
	Department	FY 2023 Advanced Research Project Appropriations	All FY2023 R&D Appropriations*
DARPA (Defense Advanced Research Projects Agency)	Defense	\$4,060,000,000	\$34,565,478,000
ARPA E (Advanced Research Projects Agency Energy)	Energy	\$470,000,000	\$8,100,000,000
ARPA I (Advanced Research Projects Agency Infrastructure)	Transportation	\$3,224,000	\$48,996,000
ARPA H (Advanced Research Projects Agency Health)	HHS	\$1,500,000,000	\$47,500,000,000
AGARDA (Agriculture Advanced Research and Development Authority)	USDA	\$1,000,000	\$3,614,603,000
*Includes Research, Development, Test and Evaluation in DOD *Science appropriation in DOE *Research and Technology appropriation in DoT *NIH Appropriation in HHS *ERS, ARS, NIFA Appropriation in USDA			

Department of Transportation's ARPA-I & Department of Health and Human Services' ARPA-H

ARPA-I was authorized in the Infrastructure Investment and Jobs Act (Public Law 117-58, also referred to as the Bipartisan Infrastructure Law), established to leverage science and technology to address efficiency, safety, and climate goals for our nation's transportation infrastructure. Appropriated \$3.2 million by Congress in FY 2023, they will build on the DARPA and ARPA-E model, as will ARPA-H. To accelerate the pace of breakthroughs in medicine, ARPA-H was established recently in the FY 2022 Consolidated Appropriations Act (Public Law 117-103) and received an initial funding of \$1 billion in FY 2022. Congress then appropriated ARPA-H \$1.5 billion in FY 2023 (Public Law 117-328).

USDA looks forward to working with these nascent Advanced Research Project Agencies as we stand up AGARDA.

Foundation Concepts and Takeaways

In considering and studying the two longest established advanced research entities, DARPA and ARPA-E, we identify a number of hallmark traits and best practices in common we would take forward in AGARDA.

1. Fund high-risk, high-return R&D only.
2. Hire and empower a cadre of highly motivated, short term, independent thinking program directors as main workforce.
3. Create a flat organization.
4. Focus on technology transfer and market translation by engaging with customers and partners throughout the process.
5. Seek additional legislative authorities to empower AGARDA with hiring and purchasing powers to facilitate speed and invention.

In addition, from the ARPA-E model, AGARDA will use a core of post docs and fellows as a creative resource, serving both as an additional innovation engine and a recruitment tool for USDA and a training tool for the next generation of ag professionals.

AGARDA Strategic Framework

USDA is uniquely poised to lead development of transformative technologies, research tools, and products through advanced research on long-term and high-risk food and agriculture challenges. The science team across USDA has experience, infrastructure, and a proven record of innovative accomplishment. The complementary intramural and extramural programs of the Agricultural Research Service (ARS) and the National Institute of Food and Agriculture (NIFA), backed by the data collected and curated at National Agricultural Statistics Service (NASS) and the Economic Research Service (ERS) present capability of full portfolio management. National and international scientific leadership and collaborative partnerships with the Land Grant University system and other universities and private funding and research entities mean USDA science is poised to move on the AGARDA concept.

Internally, USDA has rigorous scientific innovation efforts and programs, from revolutionizing basic breeding and crop growing cycles to funding last stage technology boosts to an internal X-Prize based on the celebrated competition of the same name. With these learned skills and experience, USDA will move quickly on a new organization aimed to disrupt and confront agriculture’s biggest challenges.

As we look forward, we’ve planned for a scalable program based on levels of funding. With current funding levels at a cadence of \$1 million per year in congressional appropriations, funded at the current authorized level of \$50 million. We have created an agile and scalable organization and strategic framework.

AGARDA
<p><u>Mission</u></p> <ul style="list-style-type: none"> ✦ AGARDA will deliver high-impact transformative scientific solutions to high priority agricultural challenges.
<p><u>Goals</u></p> <ul style="list-style-type: none"> ✦ Combating Climate Change to Support America’s Working Lands, Natural Resources and Communities ✦ Expanding Opportunities for Economic Development and Improving Rural Communities ✦ Building an Equitable and Competitive Marketplace for All Producers ✦ Providing Americans with Safe, Nutritious Food
<p><u>Features</u></p> <p>AGARDA will use features, benchmarked from DARPA and ARPA-E.</p> <ul style="list-style-type: none"> ✦ Fund high-risk, high-return R&D only. ✦ Hire and empower a cadre of highly motivated, short term, independent thinking program directors as main workforce. ✦ Create a flat organization. ✦ Focus on technology transfer and market translation by engaging with customers and partners throughout the process. ✦ Seek additional legislative authorities to empower AGARDA with hiring and purchasing powers to facilitate speed and invention.

We call these congressional appropriation levels **Current Funding** and **Fully Authorized**. Our vision is to construct a scalable organization, pending appropriation from Congress in the coming fiscal years. For each scenario we discuss organization and ramp up toward a fully functioning AGARDA.

AGARDA Current Funding Scenario

With current funding we are in a planning posture. This has involved engaging with partners and stakeholders, listening, and planning a pilot project. As the congressional Appropriations have been one-year funds thus far, and not permanent funding, we have not hired a permanent director or other staff. Hiring staff takes up resources quickly so we have chosen to spend instead on engagement and planning.

USDA has held an internal stakeholder listening session and is planning a more comprehensive external listening session and solicitation later this year. We are leveraging existing partnerships to assist with this work. We are soliciting input on the AGARDA organization and a pilot project concept and topic, completing this in FY 2023.

A pilot project will be commenced in FY 2024. Although most ARPA projects are funded for 5 years, we will aim to choose a project with a quicker time to market as proof of concept. We will aim to fund a project that can be completed in 2 years.

AGARDA Fully Authorized Scenario

AGARDA is currently authorized at \$50 million. If fully funded at this level, we would stand up a permanent AGARDA organization and optimize funding to tackle high priority agricultural challenges requiring scientific solutions. AGARDA will reside in the Research, Economics, and Education mission area of USDA, under the Chief Scientist of USDA, and on an equal organizational level as the existing four science and research agencies (ARS, ERS, NASS, and NIFA).

As benchmarked, we will aim to keep the overhead of AGARDA under 5%, so with \$2.5 million operating costs available from the congressional appropriated funds, we would plan to hire a director and 3 program managers (\$2.5 million), and 3 post-docs or fellows (\$750,000), with the remainder supporting administrative costs, travel, and expenses. The benefits of having a small team such as this are in achieving a flat structure and high collaboration at startup.

AGARDA will cover legislatively directed areas of:

- engineering, mechanization, or technology improvements that will address challenges relating to growing, harvesting, handling, processing, storing, packing, and distribution of agricultural products;
- plant disease or plant pest recovery countermeasures to intentional or unintentional biological threats (including naturally occurring threats), including replacement or resistant plant cultivars or varieties; other enhanced management strategies, including novel chemical, biological, or cultural approaches; or diagnostic or surveillance technology; and
- veterinary countermeasures to intentional or unintentional

The Golden Goose Maxim

USDA Science has an excellent history and decades of success that are based on a strong and thriving relationship with Congress and its other stakeholders. Being able to tell the stories and describe the impacts of our science is a critical skill and connection we must continually feed.

Drs. Edward F. Knipping and Raymond Bushland, colleagues of Dr. Norman Borlaug and pioneers of the sterile insect technique that led to the eradication of the screwworm in the United States and Panama, saved the beef industry billions of dollars, saved animals unspeakable suffering, and kept the price of beef lower in the United States for consumers. Yet they were once awarded Senator William Proxmire's "Golden Fleece Award," which ridiculed science that sounded useless or odd. Even with many prestigious awards and a legacy of multitudinous uses throughout science, the "sex life of the screwworm" has been a favorite target for some who like to talk about wasting taxpayer dollars. This was high-risk and high-return research. USDA science learned from the Knipping Bushland experience to stand behind it's relevant high-risk research and is now very adept at relaying intent to Congress and other stakeholders on our highly relevant and responsive solution-based research. The Knipping Bushland work has since won the Golden Goose award, established as a foil to the Golden Fleece Award to "tremendous human and economic benefits of federally funded research by highlighting examples of seemingly obscure studies that have led to major breakthroughs and resulted in significant societal impact."

AGARDA research will be extremely high-risk, high reward research. The Golden Goose concept reminds us it will be critical to build on the excellent relationships USDA science holds to keep Congress and other stakeholders informed of intent, progress, and failure that will inevitably occur on the path to disruptive science to confront audacious challenges.

biological threats (including naturally occurring threats), including animal vaccine or therapeutic products (including anti-infective products); or diagnostic or surveillance technology.

These areas can be further arranged under USDA's current goal areas. Four of the 5 Program Managers will oversee 4 Program Portfolios:

- Combating Climate Change to Support America's Working Lands, Natural Resources and Communities;
- Expanding Opportunities for Economic Development and Improving Rural Communities;
- Building an Equitable and Competitive Marketplace for All Producers; and
- Providing Americans with Safe, Nutritious Food.

The remaining Program Manager will control a technology-to-market portfolio that aims to move high return research through scale up to market quickly.

With \$45 million of congressionally appropriated program dollars, we would plan to begin designing and funding mixed award portfolios selected competitively by a panel of experts both public and private. AGARDA will prioritize research that goes well beyond incremental advances in science and focus on transformative and potentially risky but with the opportunity for high impact. We intend to successfully leverage existing and new partnerships, a strength of USDA science.

Closing Comments

The *Agricultural Improvement Act of 2018* (Public Law 115-334) established the Agriculture Advanced Research and Development Authority (AGARDA) pilot authority to develop technologies, research tools, and products through advanced research on long-term and high-risk challenges for food and agriculture to ensure that the United States maintains its position as leader in global agricultural R&D.

We are excited to fully launch AGARDA, founded on our rich history of disruptive science to meet agriculture's most pressing problems. Thus far, with limited funding, we have taken a scalable approach to plan for building the organization. USDA has benchmarked successful ARPA organizations and held internal stakeholder discussions. We will hold external stakeholder engagements before the end of the fiscal year and launch a pilot project in the next fiscal year (FY 2024). Depending on future appropriations from Congress, we are poised to create an advanced research and development organization that will fund high-risk, high-return R&D to complement and leverage the existing portfolios funded intramurally in ERS and ARS, extramurally through NIFA, and with our external partners.

We will hire and empower a cadre of highly motivated, short term, independent thinking program directors as main workforce, creating a flat organization that will also use a core of post

docs and fellows as a creative resource, serving both as an additional innovation engine and a recruitment tool for USDA and a training tool for the next generation of ag professionals. AGARDA will focus on technology transfer and market translation by engaging with customers and partners throughout the process.

USDA is looking forward to this exceptional opportunity to deliver responsive, practical solutions to our stakeholders, to the agricultural and rural communities and for the benefit of the American public overall.

Appendix 1 AGARDA Authorizing Legislation

7 U.S. Code § 3319k - Agriculture Advanced Research and Development Authority pilot

(a) **DEFINITIONS** In this section:

(1) **ADVANCED RESEARCH AND DEVELOPMENT** The term “advanced research and development” means research and development activities used to address research challenges in agriculture and food through—

(A) targeted acceleration of novel, early stage innovative agricultural research with promising technology applications and products; or

(B) development of qualified products and projects, agricultural technologies, or innovative research tools, which may include—

(i) prototype testing, preclinical development, or field experimental use;

(ii) assessing and assisting with product approval, clearance, or need for a license under an applicable law, as determined by the Director; or

(iii) manufacturing and commercialization of a product.

(2) **AGRICULTURAL TECHNOLOGY**

The term “agricultural technology” means machinery and other equipment engineered for an applicable and novel use in agriculture, natural resources, and food relating to the research and development of qualified products and projects.

(3) **DIRECTOR**

The term “Director” means the Director of the Agriculture Advanced Research and Development Authority established under subsection (b)(1).

(4) **OTHER TRANSACTION**

The term “other transaction” means a transaction other than a procurement contract, grant, or cooperative agreement, including a transaction described in subsection (b)(6)(A).

(5) **PERSON** The term “person” means—

(A) an individual;

(B) a partnership;

(C) a corporation;

(D) an association;

(E) an entity;

(F) a public or private corporation;

(G) a Federal, State, or local government agency or department; and

(H) an institution of higher education, including a land-grant college or university and a non-land-grant college of agriculture.

(6) **QUALIFIED PRODUCT OR PROJECT** The term “qualified product or project” means—

- (A) engineering, mechanization, or technology improvements that will address challenges relating to growing, harvesting, handling, processing, storing, packing, and distribution of agricultural products;
- (B) plant disease or plant pest recovery countermeasures to intentional or unintentional biological threats (including naturally occurring threats), including—
 - (i) replacement or resistant plant cultivars or varieties;
 - (ii) other enhanced management strategies, including novel chemical, biological, or cultural approaches; or
 - (iii) diagnostic or surveillance technology; and
- (C) veterinary countermeasures to intentional or unintentional biological threats (including naturally occurring threats), including—
 - (i) animal vaccine or therapeutic products (including anti-infective products); or
 - (ii) diagnostic or surveillance technology.

(7) RESEARCH TOOL

The term “research tool” means a device, technology, procedure, biological material, reagent, computer system, computer software, or analytical technique that is developed to assist in the discovery, development, or manufacture of a **qualified product or project**.

(b) AGRICULTURE ADVANCED RESEARCH AND DEVELOPMENT AUTHORITY

(1) ESTABLISHMENT

There is established within the Department of Agriculture a pilot program that shall be known as the **Agriculture Advanced Research and Development Authority** (referred to in this section as the “AGARDA”) to carry out **advanced research and development**.

(2) GOALS The goals of the AGARDA are—

- (A) to develop and deploy advanced solutions to prevent, prepare, and protect against unintentional and intentional threats to agriculture and food in the **United States**;
- (B) to overcome barriers in the development of agricultural technologies, **research tools**, and qualified products and projects that enhance export competitiveness, environmental sustainability, and resilience to extreme weather;
- (C) to ensure that the **United States** maintains and enhances its position as a leader in developing and deploying agricultural technologies, **research tools**, and qualified projects and products that increase economic opportunities and security for farmers, ranchers, and rural communities; and
- (D) to undertake **advanced research and development** in areas in which industry by itself is not likely to do so because of the technological or financial uncertainty.

(3) LEADERSHIP

(A) In general

The AGARDA shall be a component of the Office of the Chief Scientist.

(B) Director

(i) In general

The AGARDA shall be headed by a **Director**, who shall be appointed by the Chief Scientist.

(ii) Qualifications The **Director** shall be an individual who, by reason of professional background and experience, is exceptionally qualified to advise the Chief Scientist on, and manage **advanced research and development** programs and other matters pertaining to—

- (I)** qualified products and projects;
- (II)** agricultural technologies;
- (III)** research tools; and
- (IV)** challenges relating to the matters described in subclauses (I) through (III).

(iii) Relationship within the Department of Agriculture

The **Director** shall report to the Chief Scientist.

(4) DUTIES To achieve the goals described in paragraph (2), the **Secretary**, acting through the **Director**, shall accelerate **advanced research and development** by—

- (A)** identifying and promoting advances in basic sciences;
- (B)** translating scientific discoveries and inventions into technological innovations;
- (C)** collaborating with other agencies, relevant industries, academia, international agencies, the Foundation for Food and Agriculture Research, and other relevant **persons** to carry out the goals described in paragraph (2), including convening, at a minimum, annual meetings or working groups to demonstrate the operation and effectiveness of **advanced research and development** of qualified products and projects, agricultural technologies, and **research tools**;
- (D)** conducting ongoing searches for, and support calls for, potential **advanced research and development** of agricultural technologies, qualified products and projects, and **research tools**;
- (E)** awarding grants and entering into contracts, cooperative agreements, or **other transactions** under paragraph (6) for **advanced research and development** of agricultural technology, qualified products and projects, and **research tools**;
- (F)** establishing issue-based multidisciplinary teams to reduce the time and cost of solving specific problems that—
 - (i)** are composed of representatives from Federal and **State** agencies, professional groups, academia, and industry;
 - (ii)** seek novel and effective solutions; and
 - (iii)** encourage data sharing and translation of research to field use; and
- (G)** serving as a resource for interested **persons** regarding requirements under relevant laws that impact the development, commercialization, and technology transfer of qualified products and projects, agricultural technologies, and **research tools**.

(5) PRIORITY In awarding grants and entering into contracts, cooperative agreements, or **other transactions** under paragraph (4)(E), the **Secretary** shall give priority to projects that accelerate the **advanced research and development** of qualified products and projects that—

- (A)** address critical research and development needs for technology for specialty crops; or

(B) prevent, protect, and prepare against intentional and unintentional threats to agriculture and food.

(6) OTHER TRANSACTION AUTHORITIES

(A) In general

In carrying out the pilot program under this section, the **Secretary** shall have the authority to enter into **other transactions** in the same manner and subject to the same terms and conditions as transactions that the Secretary of Defense may enter into under **section 4021 of title 10**.

(B) Scope

The authority of the **Secretary** to enter into contracts, cooperative agreements, and **other transactions** under this subsection shall be in addition to the authorities under this chapter and title I of the Department of Agriculture and Related Agencies Appropriation Act, 1964 (7 U.S.C. 3318a), to use contracts, cooperative agreements, and grants in carrying out the pilot program under this section.

(C) Guidelines

The **Secretary** shall establish guidelines regarding the use of the authority under subparagraph (A).

(D) Technology transfer

In entering into **other transactions**, the **Secretary** may negotiate terms for technology transfer in the same manner as a Federal laboratory under paragraphs (1) through (4) of **section 3710a(b) of title 15**.

(7) AVAILABILITY OF DATA

(A) In general

The **Secretary** shall require that, as a condition of being awarded a contract or grant or entering into a cooperative agreement or **other transaction** under paragraph (4)(E), a **person** shall make available to the **Secretary** on an ongoing basis, and submit to the **Secretary** on request of the **Secretary**, all data relating to or resulting from the activities carried out by the **person** pursuant to this section.

(B) Exemption from disclosure

(i) In general

This subparagraph shall be considered a statute described in **section 552(b)(3)(B) of title 5**.

(ii) Exemption The following information shall be exempt from disclosure under **section 552 of title 5** and withheld from the public:

(I) Specific technical data or scientific information that is created or obtained under this section that reveals significant and not otherwise publicly known vulnerabilities of existing agriculture and food defenses against biological, chemical, nuclear, or radiological threats.

(II) Trade secrets or commercial or financial information that is privileged or confidential (within the meaning of **section 552(b)(4) of title 5**) and obtained in the conduct of research or as a result of activities under this section from a non-Federal party participating in a contract, grant, cooperative agreement, or **other transaction** under this section.

(iii) Limitation

Information that results from research and development activities conducted under this section and that would be a trade secret or commercial or financial information that is privileged or confidential if the

information had been obtained from a non-Federal party participating in a cooperative agreement or other transaction shall be withheld from disclosure under subchapter II of chapter 5 of title 5 for 5 years.

(8) MILESTONE-BASED PAYMENTS ALLOWED In awarding contracts and grants and entering into cooperative agreements or other transactions under paragraph (4)(E), the Secretary may—

- (A) use milestone-based awards and payments; and
- (B) terminate a project for not meeting technical milestones.

(9) USE OF EXISTING PERSONNEL AUTHORITIES

In carrying out this subsection, the Secretary may appoint highly qualified individuals to scientific or professional positions on the same terms and conditions as provided in subsections (b)(3), (b)(4), (c), (d), (e), and (f) of section 7657 of this title.

(10) REPORT AND EVALUATION

(A) Report

The Secretary shall submit to the Committee on Agriculture of the House of Representatives and the Committee on Agriculture, Nutrition, and Forestry of the Senate an annual report examining the actions undertaken and results generated by the AGARDA.

(B) Evaluation After the date on which the AGARDA has been in operation for 3 years, the Comptroller General of the United States shall conduct an evaluation—

- (i) to be completed and submitted to the Committee on Agriculture of the House of Representatives and the Committee on Agriculture, Nutrition, and Forestry of the Senate not later than 1 year after the date on which the Comptroller General began conducting the evaluation;
- (ii) describing the extent to which the AGARDA is achieving the goals described in paragraph (2); and
- (iii) including a recommendation on whether the AGARDA should be continued, terminated, or expanded.

(c) STRATEGIC PLAN

(1) IN GENERAL Not later than 360 days after December 20, 2018, the Secretary shall develop and make publicly available a strategic plan describing the strategic vision that the AGARDA shall use—

- (A) to make determinations for future investments during the period of effectiveness of this section; and
- (B) to achieve the goals described in subsection (b)(2).

(2) DISSEMINATION

The Secretary shall disseminate the information contained in the strategic plan under paragraph (1) to persons who may have the capacity to substantially contribute to the activities described in that strategic plan.

(3) COORDINATION; CONSULTATION The Secretary shall—

(A) update and coordinate the strategic coordination plan under section 6922(d)(7) of this title with the strategic plan developed under paragraph (1) for activities relating to agriculture and food defense countermeasure development and procurement; and

(B) in developing the strategic plan under paragraph (1), consult with—

- (i) the National Agricultural Research, Extension, Education, and Economics Advisory Board established under section 3123(a) of this title;
- (ii) the specialty crops committee established under section 3123a(a)(1) of this title;
- (iii) relevant agriculture research agencies of the Federal Government;
- (iv) the National Academies of Sciences, Engineering, and Medicine;
- (v) the National Veterinary Stockpile Intra-Government Advisory Committee for Strategic Steering; and
- (vi) other appropriate parties, as determined by the Secretary.

(d) FUNDS

(1) ESTABLISHMENT There is established in the Treasury the Agriculture Advanced Research and Development Fund, which shall be administered by the Secretary, acting through the Director—

(A) for the purpose of carrying out this section; and

(B) in the same manner and subject to the same terms and conditions as are applicable to the Secretary of Defense under section 4021 of title 10.

(2) DEPOSITS INTO FUND

(A) In general

The Secretary, acting through the Director, may accept and deposit into the Fund monies received pursuant to cost recovery, contribution, or royalty payments under a contract, grant, cooperative agreement, or other transaction under this section.

(B) Availability of amounts in fund

Amounts deposited into the fund shall remain available until expended, without further appropriation, and may be used to carry out the purposes of this section.

(C) Clarification

Nothing in this paragraph authorizes the use of the funds of the Commodity Credit Corporation to carry out this section.

(3) FUNDING

In addition to funds otherwise deposited in the Fund under paragraph (1) or (2), there is authorized to be appropriated to the Fund \$50,000,000 for each of fiscal years 2019 through 2023, to remain available until expended.

(e) TERMINATION OF EFFECTIVENESS

(1) IN GENERAL

Except as provided under paragraph (2), the authority provided by this section terminates on the date that is 5 years after December 20, 2018.

(2) EXCEPTIONS Paragraph (1) shall not apply with respect to—

(A) subsection (b)(7)(B); and

(B) grants awarded or contracts, cooperative agreements, or other transactions entered into before the end of the 5-year period referred to in such clause.[1]

(Pub. L. 95–113, title XIV, § 1473H, as added Pub. L. 115–334, title VII, § 7132, Dec. 20, 2018, 132 Stat. 4796; Pub. L. 117–81, div. A, title XVII, § 1702(l)(1), Dec. 27, 2021, 135 Stat. 2160.)